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I. GENERAL INFORMATION

WHEAT EXPERT OUTLINES PROBLEMS IN MODERNIZATION OF AGRICULTURE

Beijing GUANGMING RIBAO in Chinese 1 Feb 82 p 2

[Article by Correspondent Li Linhe [2621 2651 3109]: "Several Problems in the Modernization of China's Agriculture--A Visit With Peasant Wheat Expert Liu Yingxiang [0491 2019 4382]"]

[Excerpts] China's famous peasant wheat expert and vice chairman of the Henan Provincial Agricultural Commission, Liu Yingxiang, visited the United States on invitation last October to participate in the Second Meeting of the Sino-U.S. Joint Commission on Scientific and Technological Cooperation in the field of Agriculture. After he made a speech at the meeting, delegates from every country unanimously acclaimed him as "the man with the most experience at this meeting."

At the conclusion of the meeting, American agricultural scientist Dr George Keyworth and his wife accompanied him on a special trip to many places. Old Liu said that during this visit to the United States I not only saw the high degree of mechanization, and extensive use of farm chemicals that a developed economy has provided their agriculture, but I also saw the serious consequences for agriculture that these advancements have brought about. As a result of large scale use of chemical fertilizer over a long period of time and the lack of microbiological activity, the soil structure of many places has been damaged. As a result output is not high, even a decline in output is possible. American government officials at the conference said that unless this problem is solved, by the end of this century the soil structure of all their farmland will be damaged. In addition, according to research done by the American National Science Institute, 70 percent of the chemical fertilizer used is not absorbed by the crops, but is either carried away by ground water or is volatilized into the air. This is not only an extremely great waste, but also pollutes running water and the atmosphere. The fruit of crops on which chemical fertilizer and pesticides has been used are themselves polluted. As a result, the United States is now anxious to take the path of organic agriculture. The government has promulgated laws whereby those farms not using chemical fertilizer, pesticides, or herbicides are issued organic farm certificates. Products from farms holding such certificates may be sold at three, four or five times the usual price, and they are very popular.

Old Liu said that China with a population of 1 billion has an extraordinarily copious source of organic fertilizer such as human feces. To take Henan Province as an example, figuring a daily excretion of 3 jin of feces and urine for each of

its 73 million population, this means 80 billion jin each year, or an average 750 jin per mu. Henan Province also has more than 6 million head of large cattle, more than 13 million swine, 11 million sheep and goats, 12 million rabbits, and 110 million chickens. Were all the cattle and poultry manure to be used, it would be sufficient to replace all the chemical fertilizer presently used and to improve the soil as well, making the ground more fertile the more it is farmed. Liuzhuang Production Brigade in Qiliying, Xinxiang County uses 10,000 jin per mu of organic fertilizer annually for wheat yields of 800 jin per mu, and corn yields of 800 jin per mu. If every place were to devote the same attention to organic fertilizer as Liuzhuang, the province's grain output would double without question. However, many places in our provinces let large quantities of human and cattle dung disappear, and stalks and stems are burned. Organic content of soil in Liuzhuang is about 2 percent, while it is only zero point something in many other places. I am not denying the role of chemical fertilizer. Chemical fertilizer is a quick acting fertilizer, which when used at certain times increases yields strikingly. What I am saying is that use of organic fertilizer should be paramount.

Liu Yingxiang believes that China's traditional organic agriculture is in need of renewed recognition and renewed evaluation. He proposes organization of experts for conscientious study and diligent summation of China's several thousand years of abundant experiences in agriculture. We must take our own road in the modernization of agriculture.

"Need for Serious Attention to Small Planting Industry, Small Aquatic Breeding Industry, and Small Processing Industry"

Liu Yingxiang said that delegates to the conference from all countries emphasized vigorous advocacy of small-scale biointensive farming methods and development of family style food production. By so-called small-scale intensive farming, it refers to the growing of numerous things on small tracks of land: radishes, cabbage, tomatoes, cucumbers, etc. These can fully and effectively use natural resources and human resources for great increases in yields per unit of area. According to experiments performed by America's California State University, small area growing of cucumbers can produce yields nine times the American average. In places in which the weather is relatively mild, a family of five needs plant only 7 or 8 li [4.7 to 5.3 square meters] to meet the entire family's needs for vegetables. Moreover the expenditure of human labor would not be great, averaging less than 1 hour per day. This is not only something within capabilities, but it would also be very good physical exercise for those who do mental labor. While traveling around in the United States, I noticed that many homes plant food crops in flower gardens. On rooftops and patios, soil has also been added to grow crops of various kinds. On wasteland slopes in the suburbs a great deal of growing is done. A single vegetable garden may grow five or six crops each year of several different kinds. Crops that grow at different speeds are planted, and intercropping of varieties is done for harvests of different kinds at different times. This method both keeps down weeds and prevents disease and insect pests. Intercropping of lettuce and tomatoes, for example, can get rid of many kinds of insect pests that hurt tomatoes. Raising of domestic fowl is also an intensive method. We visited one farm where the feed house had several storeys. On the top storey was rabbits; on the second storey was chickens; and on the bottom one was geese. What the

rabbits did not eat, the chickens ate, and what the chickens did not eat, the geese ate. Earnings were between \$6,000 and \$7,000 per year.

Old Liu was full of confidence and hope about development in China of small planting industry, small aquatic breeding industry, and small processing industry. He said that following institution of systems of responsibility for agricultural production, everywhere in China "outstanding households" appeared. The role of these "outstanding households" should not be deprecated; they have established a model for people. How do they become outstanding? One very important way is by reliance on the "three smalls." RENMIN RIBAO reported that Zhao Qingshan [6392 7230 1472], a commune member in Hebei Province, used a courtyard of slightly more than 0.2 mu to raise hogs and fish, and to grow many things such as cucumbers, celery, radishes and grapes. Some products he processed for sale. He was able to recover cost and had an annual income of more than 3,000 yuan to support 10 people. Right now some cities are experiencing a vegetable shortage. Were all of us to do as Zhao Qingshan did, we would be able to eat anything without any problems. A single hen lays 15 jin of eggs a year. A family of five could raise 15 hens without much trouble for an average of 45 jin of egg per person per year. However, if one were to depend on a large chicken farm to get this number, that would not be easy. The country would have to spend a lot of money, and if things did not turn out well, it would lose it. China is characterized by a large population relative to land, and it has to make the most of its advantage in having a large population and households. With the liberalization of various rural policies, in particular, commune members have private plots, fields for which they are responsible, and small unused tracts of land, very good conditions for carrying out the "three smalls."

"Most Important Is to Have the Peasants Master Science and Technology"

In talking of this problem, Old Liu sighed with emotion. He said that to realize the modernization of agriculture, he believes there have to be three strengths. One is the strength of leaders. Leaders at all levels must understand science and not resort to blind guidance. Next is the strength of scientists. We scientists and technicians are few in number, but the waste of peoples ability is substantial. Third is the strength of the direct producers--the peasants. These are the keys. Unless advanced science and technology are used to arm the peasants, leadership cadres and scientists will more and more become leaders without a following, and the best research results will not be able to be applied and promoted. In Henan Province, some plots produce wheat yields of 1,000 jin per mu. There are 800 to 900 jin per mu communes and brigades, more than 700 jin per mu counties, and more than 500 jin per mu prefectures. But no one has studied well or summarized well their experiences. Were their existing experiences to be summarized and promoted, the province's total output could be multiplied several times over.

Liu Yingxiang mentioned that now there is a trend toward unpopularity about being in the front line. In the raising of wages and evaluation of positions, it is credentials that are looked at, but insufficiently serious attention is given to actual work accomplishments. Consequently, some scientists and technicians do not want to go to the front line of production, but prefer to close the door and

engage in research. This is not to say that laboratory research should be eliminated, but rather that conduct of research should not be divorced from the realities of production, and from the masses. To realize the modernization of agriculture without raising the scientific and technical levels of the 800 million peasants is so much empty talk. Following institution of systems of responsibility for agricultural production, peasant fervor for the study of science and the use of science is very high. In the propagandizing and popularizing of agricultural technical knowledge, all jurisdictions have thought up numerous methods and created numerous systems. We must continue to strive. Once the untiring hands of the peasants are guided by heads full of science, an earth-shaking change will come about in China's agriculture.

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METHODS TO IMPROVE PERSONNEL MANAGEMENT DISCUSSED

Tianjin KEXUEXUE [SCIENOLOGY] in Chinese No 5, 20 Oct 81 pp 44-46

[Article by Zhu Xinmin [4281 2450 3046]: "Ways to Improve Management of Agricultural Scientific and Technical Personnel"]

[Text] The central issue in improving the management of agricultural scientific and technical personnel is to steadily expand the work force, restructure the organizations, and mobilize the initiative of the personnel. Below are a few ideas on ways to improve the management of personnel.

1. Actively Train Personnel for Technical Popularization

The Chinese Academy of Sciences classifies scientific research into four levels, namely, basic research, applied basic research, applied research and popularization research. In order to serve the purpose of production, the academy puts 30-40 percent of its work force on applied research, 5-10 percent on popularization research. Agricultural research units below the provincial level work mainly on applied and popularization research and should devote more of their forces to popularization research. The provincial academy should use 20 percent of its personnel for this purpose; prefecture institutes, over 50 percent; while county institutes should devote their entire force to popularization research and work. Currently practically all the scientific and technical personnel in the provincial academy and the prefecture and county institutes are engaged in applied research (about 40 percent are working on seed breeding). This state of affairs should be changed quickly. Agriculture is restricted by natural conditions, so it is of no advantage to impose arbitrary uniformity over a large area. The key to popularization work are the grass-roots communes and production brigades. If we are to provide each production team with one middle-level technical personnel then we would need 30,000 of them. If we are to provide each production team with one primary-level agricultural technician, then we would need 300,000 for the whole province. It can thus be seen that training popularization personnel and expanding the number of them to popularize technical skills are important parts of work in personnel management. To train the necessary personnel, we should explore diverse means and methods. In addition to existing colleges and universities, agricultural middle schools should be set up in the countryside, while research units at the provincial, prefecture and county level should all take on the task of training personnel, and produce results and qualified personnel to serve the purpose of production.

2. Raise the Level of Scientific Research Personnel

Scientific Research work in our province so far has been mainly on introducing achievements from outside and summarizing them. Creative projects take a secondary place. Take improved varieties of seeds, for example. Over 40 percent of the province's technical force is working on breeding. Only 23.5 percent of the seeds used are staples being used in production or selected from promising varieties by our own technicians. These are sown to limited areas and few varieties have been passed on to other provinces. To change this situation, aside from improving conditions and management, the main effort should be on raising the professional level of the personnel. The main targets of training should be:

(1) Train academic leaders. Generally speaking, leaders should be experienced and have done creative work in their specialized fields and have the ability to lead a group of people in research and contribute to progress in their fields. The average age of the 160 middle-level research personnel in the provincial academy is 48.1. The average age of the 50 supervisors of the 59 completed projects of 1978-79 is 45.3. Of these, 50 percent are 45 or under, the youngest is 34. This shows that it is best to train people under 45 as research leaders.

(2) Train research mainstays. Generally speaking, research mainstays are those who can undertake and complete a task independently, organize research work, produce design plans, and sum up experimental work. The present mainstay personnel are all over 40. To bridge the age gap, we should select people under 45 to be trained as mainstays.

(3) Raise the level of basic disciplines, experimental techniques and foreign languages. Because of the 10-year turmoil and increasing obsolescence of knowledge, everyone faces the question of re-learning and being re-educated. Each person should concentrate on some specialty, and work and learn at the same time.

In training and raising the level of research personnel, we should make full use of existing academic leaders and veteran scientists in local units, regions and provinces. We should also send our people in a planned way to other units, provinces or countries to study. This is of strategic significance and should be carried out in a planned way and without delay.

3. Readjust the Composition of Scientific Research Personnel

To suit the laws of development of sciences and do a good job of scientific research, we should make suitable readjustment of the composition of research personnel. First of all, there should be a proper proportion of personnel in the different disciplines so that research can be conducted in depth and comprehensively. As far as agricultural research units go, what we lack at present are people versed in basic disciplines, applied math and computing techniques, economics, and integration. The United States devotes much effort to this aspect, their engineering and economic personnel, especially, account for 8 percent and 10 percent respectively. We should increase personnel in

these areas according to the needs of different units, the proportion to be controlled, say, at 20 percent. Second, through readjustment to more satisfactory padoda-shaped structures should be formed in technical level (high, middle, primary), division of work (researchers, assistants, support personnel), age (old, middle-aged, young). Third, the proportionate composition of administrative personnel, technical personnel and workers should also be readjusted. We should, through training, turn non-professionals into professionals, and gradually reduce the number of workers through the use of machines. The target is to gradually change the proportions from 1:2:4 to 1:5:4. In other words, for every manager, there should be one researcher (or leader), two assistants (or chief researchers), two support personnel, and 3-4 workers.

4. Implement Policies and Make Use Rationally

Like other scientific and technical personnel, agricultural scientific and technical personnel are a part of the working class, a force the party relies on. In recent years, the central and local governments have adopted a series of principles and policies that have mobilized the initiative of the scientific and technical personnel. But some problems remain to be studied.

First, insist on the socialist principle of material benefits. Among the agricultural scientific and technical personnel now, there is a universal tendency toward equalitarianism. The socialist principle of material benefits has not been put into practice with units and individuals that have made outstanding achievements in science in technology. We should practice the system of personal responsibility for one's area of work. Scientific and technical personnel who have made outstanding achievements should be honored politically, be given appropriate technical titles, and receive appropriate remunerations. The same goes for whole units, so as to encourage people to work hard at mastering foreign languages and basic theories, at studying popularization of science and technology and scaling the heights of science.

Second, insist on training with definite goals and utilizing one's strong points. A research unit should be a collective made up of different kinds of personnel and having definite research capabilities. This collective should have both specialized personnel and comprehensive personnel; both professional personnel and basic and technical personnel; both research personnel and management personnel. After receiving the necessary grounding, the different kinds of personnel should be trained to reach definite goals, with their strong points being put to full use. We should not use professionals as non-professionals, and vice versa.

Third, mobility of personnel. Mobility of personnel is good for both individual growth and scientific progress as a whole. Mobility is also an objective need. Some people may be suited for research, others for teaching or popularization or management. If their present posts cannot make full use of their strong points, mobility can solve the problems. Or, when mutual relationships are not harmonious, and no amount of political-ideological work can achieve expected results, certain mobility should be allowed. Mobility is also necessary to solve such problems as husband and wife living in different places. Ours is a socialist country which is different from capitalist

countries, and there cannot be a wide range of free mobility. Perhaps the authorities can apply the following measures to promote mobility: 1) Research institutes should have the authority to transfer and recruit personnel; 2) promote large-scale research cooperation; 3) invite lecturers or send people out for study or refresher courses; 4) send out study groups and organize academic exchange; 5) allow project supervisors to select their own assistants and support personnel.

Fourth. Open all avenues for people of talent. Modernization of agriculture needs large numbers of qualified research personnel, therefore we must open all avenues for people of talent and give them a chance to develop. Aside from training personnel through various channels, we should encourage young people to study on their own. The state should establish necessary systems to allow people who study on their own to take examinations or be assessed at designated places and be issued certificates. Once accepted by a work unit, they should receive equal treatment.

Fifth. Create conditions for scientific research. To bring the role of scientific research personnel into full play, we must provide the necessary instruments, facilities, books and reference materials. Some Japanese friends who in 1980 visited our provincial academy of agricultural science said that while the grounds and buildings were adequate, instruments and equipment were most inadequate. In recent years in the provincial academy, the expenditure for each person each year averaged 2,000 yuan; in the prefecture institutes, 1,500 yuan; in the county institutes, only 1,000 yuan. After deduction of staff wages and miscellaneous expenditures, little was left to purchase instruments and books and to use for scientific research projects. If this situation is not changed, there will be a great waste of qualified personnel. To change this situation, we should, first, increase investments and, second, economize on expenditure and increase income, and ensure key projects and make rational investment.

Sixth. Establish evaluation and promotion systems. The state has already made stipulations regarding promotion of scientific and technical personnel. We also need a complete set of systems to implement the stipulations regarding promotion of scientific and technical personnel. We also need a complete set of systems to implement the stipulations well. Since there is a great lack of qualified personnel in our country, we need to move faster. We should hold evaluations once a year to accelerate the growth of qualified personnel. The main content of evaluations should include a person's professional level, foreign language level, scientific research and work ability, scientific research achievements and work performance, contribution toward the development of agricultural production and its economic effectiveness. Methods of evaluation can combine examinations with summing up work and appraisal of achievements. After assessment, the examinees should be given awards according to the standards they measure up to and be promoted by the academic committee and given corresponding technical titles.

It is this writer's view that as long as the leaders at different levels give full attention to the management of agricultural, scientific and technical personnel and take feasible measures, the ranks of agricultural scientists and technicians is sure to grow in strength and numbers.

CRITERIA FOR ANALYZING SUITABILITY FOR AGRICULTURAL MECHANIZATION

Tianjin KEXUEXUE [SCIENCE] in Chinese No 5, 20 Oct 81 pp 36-38

[Article by Liu Tianfu [0491 1131 4395]: Institute of Technology Economics, Chinese Academy of Social Sciences: "Fifteen Key Elements in the Economic Analysis of Agricultural Mechanization Techniques"]

[Text] This article explores preliminarily the economic analysis of the agricultural mechanization techniques, bring about 15 key elements that should be given attention. These 15 elements are: standpoint, point of view, methods, demands, capabilities, profitability, time, place, circumstances, objectives, standards, comprehensiveness, focus, steps, and measures.

By so-called standpoint is meant that it is necessary to proceed from the angle of China, or a given region, or a unit. In mechanization, we cannot copy mechanically the experiences of foreign countries or foreign areas, but rather we must analyze and digest them for our own use.

The so-called point of view is used here to mean a scientific point of view based on objective laws and scientific theories, such as the laws of natural change, the laws of growth and development of animals and plants, the laws of ecological balance, the basic economic laws of socialism, the laws of planned proportional development of the national economy, the laws of value, and in certain cases, the theory of gradually decreasing land rewards, and the theory of economic effectiveness. If these laws and theories are ignored, inevitably the objective laws will suffer penalties, resulting in numerous detours and losses in the march toward the mechanization of agriculture.

The so-called methods means the concrete methods of using the philosophical method of dialectic materialism to guide qualitative and quantitative analysis in economic analysis of the agricultural mechanization techniques.

The so-called demands means the requirement to develop direction, tasks, and objectives on the basis of the social needs in agricultural production. When objective realities require the use of a certain kind of agricultural machinery for their solution, or when it can be foreseen that a certain technical and economic benefits can be obtained, we should make a priority solution. For example, for large-scale reclamation of wasteland on the Sanjiang Plain in the Northeast, complete sets of farm machinery should be allocated, on the North China Plain, drying

facilities are urgently needed during the three summer, rainy-season jobs [planting, harvesting and field management], and while the urgent need in mountainous and hilly regions is machinery for lifting water and for hauling. Only by carrying out these kinds of selective mechanization can we meet with objective needs.

So-called capabilities means that the utilization of a definite farm machinery must meet realistic technical and economic conditions. Five such conditions are included here as follows:

1. A source of funds. This includes contributions by communes and brigades, bank loans, and disbursements by the state.
2. Realistic industrial capability to provide farm machinery. This includes the variety, model, quantity, and quality of agricultural implements and spare parts, and technical services for farm machines.
3. Energy situation. If the degree of agricultural mechanization exceeds energy supply capabilities, the farm machine utilization rate must inevitably decline, resulting in the falling of the benefits from investing in farm machines. About half the diesel engines in China are used in agriculture, but China does not have a surplus of petroleum; therefore, in the process of China's farm mechanization, handling of the energy problem must certainly not be ignored.
4. Personnel training and scientific management conditions. If farm machines are to be used safely and with high efficiency, drivers and maintenance personnel will have to be trained. Without scientific management, the farm machine utilization rate cannot be very high. A representative survey shows 42 percent of drivers lacking certification. Under these conditions, equipment losses and other accidents are very high; therefore, training of personnel and scientific management are a major situation that cannot be overlooked.
5. Finding opportunities for surplus workforces. China's rural population is legion, and if this problem is not simultaneously solved, smooth development of agricultural mechanization cannot take place.

So-called profitability means that after using farm machines, peasant income should be greater than expenditures, or that costs of using farm machines will be lower than costs before machines were used, or that use of farm machines will enable peasants to earn more income.

So-called time, place, and circumstances means that the design, putting into production, and use of farm machinery must fit in with the time, the place, and the circumstances. Ours is a vast land in which natural conditions and agronomic requirements differ, therefore resulting in obviously different demands of farm machinery. In the meantime, because of the different socio-economic conditions, cultural conditions, technical and management levels in various areas, the farm mechanization process cannot be uniformly the same. There is no doubt that foreign machines and experiences cannot be blindly copied. Diligent study of different kinds of farm mechanization zones and the selection of the most advantageous course, plans, and methods must be done on the basis of an understanding

of China's situation and the formulation of agricultural zones. For example, in one low-lying marshy place, machines for the draining of waterlogging are the principal problem to be solved, while in another area that is normally arid, machines for raising water and for spray irrigation should become the area's major stock of farm machinery. As another example, in places where people are numerous relative to land, or where a system of responsibility is practiced whereby production is contracted to households, large farm machines would become inappropriate, and small machines would have to be developed instead.

So-called comprehensiveness means that when analysis and evaluation of economic results of the use of farm machinery techniques, comprehensive analysis of other influencing factors are necessary. It is necessary both to consider value indicators and how to use these value indicators. It is necessary both to consider present and partial economic results and to consider long-term, overall economic results. At the time of comprehensive analysis, it is necessary to consider technical levels, communications and transportation conditions, management levels, changes in the management system, as well as the total labor expenses. Use of advanced machines also requires consideration of factors such as their role in stimulating technical innovation and the raising of the standards of techniques. In importing machinery, it is necessary to consider loan and interest payments, foreign trade price increase constant, and changes in international market prices. It is also necessary to consider the development of China's domestic industry and scientific research, the training of skilled people, and provisions for workforces.

So-called standards means the standards, criteria, and fixed quotas required in the use of farm machines. Standards generally means high output, superior quality, high efficiency, low consumption, safety, and benefits as reflected in the form of numerical values and in the major appraisal indicators for agricultural and economic techniques. Of course, relative comparison should be carried out to meet these standards, but absolute comparison against different fixed quota should also be employed to raise these standards. For example, the standards for putting farm machines on the market are to be based on the zoning plan and the allocation system of farm mechanization. These standards govern from the starting point of putting the farm machinery on the market, to the point where the market is saturated to between the critical margin of exceeding the economic needs, capabilities, and profitabilities and the suitability that is below the relative peak point.

In order to carry out selectively the course of mechanization, all jurisdictions will have to have specific standards. For example, the production brigades in the Northeast that have met the following standards can be "mechanized" first:

1. The average area of cultivated land for which the brigades workforce is responsible is more than 30 mu.
2. The natural resources of forestry, livestock, and fishery is above 5 mu per person in average; and income from industrial sideline occupations amounting to slightly more than 40 percent of total income.
3. Per capita earnings distributions of more than 150 yuan.

In addition, agricultural mechanization work must also give serious attention to study of quotas and conversion equivalents, substantially instituting an average amount of investment in farm mechanization per mu of cultivated land, and a fuel consumption quota per hour per horsepower. Study must be given on how to convert to unified units of measurement of manpower, machines, and draft animals, and on how to convert farm products, diesel fuel, steel, and electric power to comparable thermal units.

So-called objectives means the goals sought through use of farm machines. Mechanization is only a means whose immediate objective is to solve first what is the most needed for the development of agricultural production, what is the most obvious for increasing production and earnings, and what is the most effective in heightening the labor productivity rate, reducing the intensivity of labor, and in improving the labor conditions so as to achieve best economic benefits. The ultimate objective of mechanization is to satisfy society's ever increasing need for farm products and to steadily improve people's living standards. The standards by which the objectives are set should be the commodity rates for farm products, contract completion rate for exchanges of commodities, per capita consumption of various farm products, how many members of the non-agricultural population are supported by the grain produced by each member of the agricultural workforce, average amount of consumption grain per capita in rural areas, per capita distribution of earnings, and gross value of national production per capita.

So-called focus means the focus of farm machine placement in production and use. In regional terms, the focus should be on selection of places and units in which needs are most urgent, potential for increases in yields greatest, conditions for placement in production quite good, and technical and economic benefits quite good. An example is the Songnen Plain where soil is fertile and land plentiful relative to population, each member of the farming population farming 23 mu of land, or 6.2 times the national norm, but where yields average only slightly more than 250 jin per mu, where machine power averages only 0.036 horsepower per mu, and where investment required for farm mechanization averages only between 30 and 50 yuan. By contrast, in the South Jiangsu region, each member of the workforce farms an average of less than 3 mu; yields average about 1,000 jin per mu, and investment required for farm mechanization would amount to more than 200 yuan per mu. This shows that the focal point for placement of farm machinery should be in the northeast, while in the South Jiangsu region only after industrial sideline occupations and economic diversification have developed further to the point where they meet farm machinery placement standards and suitable machinery is available should there be a change in the focus for placement.

So-called steps means having a choice and proceeding in stages in the use of farm machines. Because of limitations posed by various objective factors, and because various conditions differ, we should start from certain major links, and gradually fill in the gaps to complete the whole process, proceeding from initial mechanization to substantial mechanization, and finally to total mechanization. This requires that farm mechanization be done selectively and in stages. Consequently, this requires that we proceed on the basis of actual conditions, and step by step do a good job in farm mechanization plan appropriate to local conditions. Today, manpower used nationally averages 0.02 horsepower per mu of cultivated land; draft

animal power averages 0.028 horsepower, machines average 0.022 horsepower, and electricity averages 0.256 horsepower. Looked at in terms of the rural energy resource structure, the ratio of man and animal power is still rather large. Therefore, beginning now and for a fairly long time to come, a situation will exist nationally in which manpower, semi-mechanization and mechanization co-exist, some areas being substantially mechanized and various agricultural production bases being totally mechanized. However, other different areas can carry out mechanization in several stages: Places with large populations relative to land should first lean toward projects such as drainage and irrigation, long distance hauling, drying, and plant protection, to develop guaranteed high-yield and stable output in which achievement by manpower is difficult but by machines is comparatively profitable, then gradually creating conditions for the realization of complete mechanization. In places where population is scant relative to land, emphasis will go first to increasing the labor productivity rate, to assuring that work gets done during the farming seasons, and to selecting projects that can release the most manpower and to achieve breakthroughs. We must carry out, step by step, basic mechanization to benefit production on an in-depth and broad scale.

So-called measures means the economic policy on farm mechanization techniques, production guidelines, and the way the structure of production forces is formed and other guaranty measures. There are questions regarding this to be discussed. In energy policy, for instance, should diesel engines be the main source of power, or should coal, electricity, petroleum, wind, sunlight, water, and gas be developed simultaneously as sources of power? Should farm machines be mostly imported from abroad, or should nationally produced farm machinery predominate? Should mostly high horsepower models of farm machines be developed, or should there be a combination of large, medium, and small models? Should there be mechanization for mechanizations sake with the task of mechanization being completed within a limited period of time, or should there be specialized guidance, concrete analysis, and implementation approach that provides choices? Should there be state-owned tractor stations in the management system? In farm machine pricing policy, how should the state subsidize farm machinery products? Other questions are policies on farm machine repairs and tax exemptions, tractor transport on highways, the domestic exchange rate and lowering of prices for commercial materials supply and importation of farm machinery in foreign trade. Other questions are: wise investment by the technicians and economists engaging in agricultural mechanization, whether the placement and the distribution of farm machines should set a time period for investment recovery, the quota and the number of years imposed on the use of the farm machines, as well as guidelines and policies on financial allocation of specific projects and bank loans. All these matters will have a very large bearing on how farm mechanization develops, the speed of its development, and the extent of its economic benefits. In addition, the improvement of the management system is also very important. For example, policy measures adopted by Wuxi County which called for commune-run grain stations to centralize the drying of paddy not only solved the problem of individual production teams not being able to afford drying machines, the lack of full use of such machines, and the lack of economy in use of such machines, but also the serious problem of rotting grain harvested in summer. All these things bear on analysis of the economic effectiveness of using farm machines.

The interrelationship of the 15 elements in the economic analysis of farm mechanization techniques shows the following: 1. Demands, capabilities, and profitability are the core and major components in the economic study and analysis of the techniques used for farm mechanization. 2. Objectives have to be divided into those that are ultimate and those that are immediate, both of them determining the direction and goals of the application of farm mechanization. 3. In terms of production and social demand, these 15 key elements are only potential requirements. Only when demands, capabilities, and profitability are considered together can these elements be realistically implemented in farm mechanization. 4. In the element of capabilities, there is a relationship among various economic conditions that are mutually conducive and restrictive. 5. Measures and policies are the guarantee in which techniques, principles and the actual implementation can be carried out. 6. Stance, point of view and methods are the guiding thoughts in farm mechanization techniques and economics. 7 Time, place, and circumstances are concrete employment of the dialectic method.

In summary, when we analyze and appraise the application of technique and economy in farm machinery, we should grasp and apply these 15 key elements, looking at the zoning charts, the timetables, and the classification of quota system so as to thoroughly comprehend the overall situation, synthesize research, and analyze and compare in our attempt to ascertain a more accurate economic assessment and conclusions.

9432

CSO: 4007/207

1981 AGRICULTURAL, SIDELINE PROCUREMENT PLAN OVERFULFILLED

Fuzhou FUJIAN RIBAO in Chinese 19 Jan 82 p 3

[Article from Xinhuashe: "1981 National Agricultural Sideline Products Procurement Exceeded Plan. Procurement Valued at a Total of More Than 23.5 Billion Yuan, a 7 Percent Increase Over 1980, a Record Year Over the Past Several Years"]

[Text] 1981 was China's best year during the past several years for agricultural sideline production procurement. Statistics from the National Supply and Marketing Cooperative Administration show the value of national agricultural sideline production procurement during the year to have totaled 23.54 billion yuan, exceeding plan for the year and showing a 7 percent increase over 1980. The provinces and autonomous regions of Guizhou, Yunnan, Xinjiang, Liaoning, Jiangsu, Shandong, and Jilin in which the extent of increase was substantial, had an increase ranging from 10 to 34 percent.

Agricultural sideline production during 1981 was characterized by pronounced increases in the amount of procurement of raw materials for some major light and textile industries. This helped to ease the tense situation of a supply shortage and to increase warehouse storage of some raw materials. As of the end of December 1981, cotton procurement throughout the country amounted to 52.43 million dan, a more than 4 million dan greater procurement than in 1980 for an 11 percent overfulfillment of plan. Procurement of an additional approximately 3 million dan is anticipated. Jute and amber hemp procurement has already amounted to 10.38 million dan, exceeding plan by 30 percent. More than 23 million dan of flue-cured tobacco has been procured, exceeding plan by 36 percent. Raw materials for the light and textile industries including ramie, sun-cured tobacco, pure goat hair, sheepskin, and silkworm cocoons also overfulfilled procurement plans.

Another characteristic of last year's agricultural sideline production procurement was the attention given to overcoming the state of turmoil in procurement work and improvement in the planning of procurement. During the past 2 years, tea output annually increased by 400,000 to 500,000 dan, but because of the numerous channels through which it was procured, state procurement plans were not well fulfilled for a time. Last year planning and management were improved and the state purchased 5.43 million dan, an all-time high. Procurement plans for dry products and fruits were also fulfilled rather well. Apple procurement was 360,000 tons more than in 1980, and orange procurement was greater by 70,000 tons. Red dates, black wood fungus, and day lily procurement also overfulfilled plan.

Some problems still exist in agricultural sideline production procurement, however, the major ones being some scarcity of commodity products, and people from non-producing areas going into producing areas where they purchase at inflated prices and capture the sources of supply, thereby impairing fulfillment of procurement plans. Because profits are small and a lot of work required for some third category agricultural sideline products, supply and marketing units are not very enthusiastic about handling them, and the quantity procured has declined. These problems have aroused the attention of departments concerned, and they will be gradually solved in the course of agricultural sideline product procurement this year.

9432

CSO: 4007/201

BRIEFS

GROSS VALUE OF AGRICULTURAL OUTPUT UP-- China's restructuring of the internal structures of agriculture and of agricultural crop patterns has brought fine results. Despite frequent natural disasters during the past 3 years, with increases and decreases in grain production, gross value of agricultural output has increased at a rate of 5 percent each year. Comparison of 1981 with 1978 shows a general increase of more than 15 percent. Data reported by individual provinces shows that the area sown to grain in 1981 was more than 100 million mu, slightly less than that of 1978, yet the increase in grain output was more than 30 billion jin, making it the second highest year for grain output since the founding of the People's Republic. In 1981, cotton, oil-bearing crops, and sugar-bearing crops increased by 31, 80, and 32 percent respectively as compared with 1978. Mulberry silkworm cocoons, tea, and flue-cured tobacco increased by 44, 21, and 12 percent respectively. [Text] [Taiyuan SHANXI NONGMIN in Chinese 12 Jan 82 p 3] 9432

CSO: 4007/201

BELJING

NATIONAL LOANS TO AGRICULTURE INCREASED IN 1981

Beijing ZHONGGUO CAIMO BAO in Chinese 30 Jan 82 p 1

[Article: "Meeting the Needs of the Implementing of Systems of Production Responsibility and the Comprehensive Development of Agricultural Sideline Production, National Agricultural Banking Departments Last Year Loaned Over 33.2 Billion Yuan; Nearly 90 Percent of the Loans Were Repaid, Due to Good Economic Results"]

[Text] Meeting the need to implement systems of production responsibility and to comprehensively develop agricultural sideline production, the nation's banking departments in 1981 issued loans to state agriculture, commune agriculture, and brigade agriculture and to commune enterprises and commune members totaling 33.28 billion yuan, an increase of 3.87 billion yuan over the previous year, and effectively supported food and economic crops and the development of a diversified economy.

Last year, the nation's agricultural banks and credit unions issued loans worth over 16 billion yuan to commune and brigade collectives, an increase of 9 percent over the previous year. Banks and credit unions vigorously supported the comprehensive development of agriculture, forestry, animal husbandry, sideline production, and fisheries. According to provincial and municipal statistics, the proportion of diversified economy loans among agricultural loans to communes and brigades has increased from 30 percent to about 50 percent. The nation's credit unions issued a total of 3.3 billion yuan in loans to commune members—an increase of 2.1 billion yuan over the previous year, or a 1.75-fold increase.

Agricultural banks and credit unions have actively supported the development of commune and brigade enterprises in readjustment and reorganization. Last year the nation's total loans to communes and brigades was 13.9 billion yuan—1.6 billion yuan more than during the previous year, for an increase of 13 percent—mainly to support the developing of marketable consumer goods and medium and small agricultural tool production.

To supply the rapid development of state-run agriculture, agricultural banks last year loaned state-run agricultural enterprises 3.3 billion yuan, an increase of .93 billion yuan or 39 percent over the previous year. The large increase in loans to state-run agriculture was due to increases in state farm-operated industrial sideline production, expansion of the scope of loans, pilot programs in medium- and short-term loans for equipment and support for flood relief and restoration and expansion of production of state farms in Heilongjiang and other provinces.

Owing to the good economic results of the loans, the returns last year were also good. Last year a total of 29.6 billion yuan in agricultural loans was repaid, equal to 89 percent of the loans made.

8226

CSO : 4007/202

AGRICULTURAL DEVELOPMENT POLICY DISCUSSED

Beijing ZHONGGUO CAIMAO BAO in Chinese 2 Feb 82 p 3

[Article by Huang Daoxiz [7806 6670 7209]: "Rely on Policy and Science To Accelerate the Development of Agriculture"]

[Text] When Premier Zhao Ziyang proposed the 10 principles for future economic construction in his government work report to the Fourth Session of the Fifth National People's Congress, he mentioned first of all: "Rely on policy and science to speed up the development of agriculture." He pointed out the path of China's agricultural development and explained the ways and means of this path. Below we discuss this principle from three perspectives.

1. The central issue is improvement of agricultural economic results.

The accomplishments of China's socialist agriculture in the past 32 years have been very great. However, because we have taken a tortuous path, agricultural labor productivity is now very low. In guiding ideology in particular, we suffered in the past from the mistaken influence of the left and did not do things strictly according to objective and natural laws, did not adequately mobilize the initiative of the peasants to develop production and maintain the socialist path, and did not undertake a diversified and comprehensively developed agriculture. In addition, the failure to consider cost in agricultural production, profit and loss in management, and value in labor resulted in an extraordinary waste of manpower, material, financing, and natural resources, so that the economic results in agriculture were very low. These defects have severely hindered the development of the superiority of the socialist system and the accelerated development of the agricultural economy. In carrying out the Party Central Committee's series of principles and policies over the past 3 years, a great deal of work has been done, the initiative of the peasants has been mobilized, and there have been evident improvements in production and in the income of the peasants, but the defects mentioned above have still not been completely overcome. In particular, improving the economic results in agriculture is a problem that urgently awaits resolution.

Improving the economic results of agriculture requires the establishment of the idea of a comprehensive development of agriculture. We must conscientiously implement the policy of "actively diversifying

economically without giving up food-grain production," and correctly handle the several relationships among food crops, between food crops and economic crops, between agriculture, forestry, animal husbandry, sideline production, and fisheries, and between agriculture and commerce, so that all rural construction will be able to develop in concert. China has over 1 billion mu of land under cultivation, over 4 billion mu of grassland, and several billion mu of mountainous and marginal land suitable for forestry and grazing. China has vast shallow waters and coastal waters. In the villages, China has very adequate labor resources, and if only we would firmly establish the idea of comprehensive development under unified planning and management, suiting measures to local conditions, and, according to the different natural conditions of different areas, fully develop the superiority of the natural resources, technical forces, and human resources of each area, concentrating on developing what is suitable for development, we would be able to maximize advantages and minimize shortcomings and achieve greater economic results with less investment. In line with the demand for the comprehensive development of agriculture, forestry, animal husbandry, sideline production, and fisheries, we should tap new sources of production and advance in depth and breadth, and in this way China's agriculture will achieve even greater overall economic results.

2. Rely on policy to develop agriculture.

Since 1979 we have been smashing the bonds of "leftist" thinking, carefully stressing the links of establishing and making viable various kinds of systems of responsibility in agricultural production, and diversifying economically as suits local conditions, and we have begun to readjust agricultural policy and rural production relations and to guarantee the autonomy of production brigades. In this way we not only have overcome the faults of blind commandism in production, the egalitarianism in allocations, and the stifling overcentralization which exists in collective economic management, but through better organization of labor and methods of calculating pay we have brought about a readjustment of rural collective managerial methods and productive relations and have mobilized the productive initiative of the peasants. In addition, the Party Central Committee and State Council adopted a series of measures and policies to develop the rural economy to produce a generally good situation in agriculture which it has not had before. The principal economic forms in China's villages now are collective economies of different scale and different degrees of socialization. Concurrent with this are state farms and commune member family economies which supplement the socialist economy. Such diversified socialist economic structures are good for promoting more rapid development of agricultural productive forces and fully developing the superiority of the socialist system.

Systems of production responsibility are now being universally established in rural areas. We should adopt a positive and serious attitude and unrelentingly do a good job of improving and perfecting the system of production responsibility so as to gradually improve various forms of the production responsibility systems, including agriculture, forestry, animal husbandry, fisheries, industry, and commerce. In stabilizing and

improving the system of production responsibility, we must protect the principal position of the people's communes, brigades and production teams, and protect and utilize well the collective means of production and public property that we already have. In particular, we must maintain collective ownership of land, and pay careful attention to protecting land that is under cultivation and arable land that is being rationally used. Any arable land, wasteland, grassland, hilly land, or underwaterland which belongs to a collective but which is not under unified planning and management by the collective cannot unilaterally be occupied and used by any unit or individual. Rights to private plots and hills distributed to commune members by the collective belong to the collective, as does residential land. Every effort must be made to make land contracts reasonable and to strictly prohibit the use of contracted land for building houses or graves or removing soil. Land contracted to a commune member cannot be bought or sold, rented or transferred, or allowed to lie fallow. Otherwise, the collective has the right to reclaim it. The rural basic political rights organizations should be further reorganized and strengthened, and their positive functions should be fully developed. All our rural cadres and commune members must clearly understand that the ownership of China's basic means of production, rural socialist collectivized roads and lands, is unchangeable and that the system of implementation of production responsibility in the agricultural collective economy is unchangeable. The aim of establishing and making healthy the system of production responsibility in agriculture is to improve the rural socialist economic system so as to make the collective economy stronger and better developed.

3. Research in the extension of agricultural science and technology must occupy in an important position.

Science is a latent productive force. Once applicable agricultural science and technology are researched and applied to production, the economic results are very evident. For example, in 1980 the area planted in hybrid paddy rice was expanded to 79 million mu nationally and generally produced over 100 jin more per mu than common paddy rice plantings. This is a clear demonstration of the enormous power of the intellectual investment in science and technology in expanding production. After the system of production responsibility was implemented in the general rural areas, a high tide of "study science, apply science" began to rise.

At present we must combine closely the short-range and long-range needs of agricultural, forestry, animal husbandry, sideline and fisheries production, and formulate a group of scientific research projects, such as developing and disseminating superior strains, improving cropping systems, improving crop distribution, reforming chemical fertilizer composition, carrying out the rational application of fertilizer, producing effective agricultural chemicals with low toxicity, practicing the selective use of agricultural machinery, etc. In addition, attention

should be paid to scientific and technological guidance of the diversified economy and commune members' sideline production. These are all needed by long-range and short-range agricultural production; there should be a planned science and technology assault and a vigorous dissemination to suit local conditions. Agricultural scientific research, educational, and dissemination organs at all levels should work together and produce results as quickly as possible. We should combine China's superior traditions in intensive cultivation and the result of modern scientific and technological research; strive for low investment, low consumption, and high results; and, while protecting the ecological balance, strive for an increase in the agricultural commodities we need from the natural world.

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CSO : 4007/202

BEIJING

BRIEFS

ZHANG PINGHUA AT AWARDS MEETING--Beijing, 3 Apr (XINHUA)--The State Agricultural Commission and the State Scientific and Technological Commission jointly held a meeting in Beijing today to present certificates of merit, award certificates and cash awards to units and individuals outstanding in popularizing major results of agricultural scientific research. Awards were presented to 1,248 units and 924 individuals. Vice Chairman Tong Dalin of the State Scientific and Technological Commission presided over the meeting at which Vice Chairman He Kang of the State Agricultural Commission read out the "circular of awarding those who have popularized 224 agricultural scientific and technological results" and the major agricultural scientific and technological results popularized by the award winners. First Vice Chairman Zhang Pinghua of the State Agricultural Commission presented certificates of merit, award certificates and cash awards to units and individuals and made a speech. He stressed: It is necessary to make continuous efforts to eliminate the "leftist" influence and the influence of small producers' parochial ideas and of the force of habit; to thoroughly change the still existing view of looking down on agricultural science and technology, especially on the work of popularizing agricultural science and technology; and to conscientiously give priority to agricultural scientific and technological research and agricultural education and to popularizing results in this regard. [Excerpts] [OW040049 Beijing XINHUA Domestic Service in Chinese 1308 GMT 3 Apr 82]

CSO: 4007/364

INCREASED GRANARY CONSTRUCTION REPORTED

Fuzhou FUJIAN RIBAO in Chinese 19 Jan 82 p 1

[Article by Zhou Jing [0719 7234] and Guo Xun'an [6753 0534 1344]: "Jianyang Prefecture Completes Construction of 20 Granaries"]

[Text] Jianyang Prefecture has newly constructed 20 granaries to increase capacity by 25.5 million jin.

Jianyang Prefecture has had bumper grain harvests for the past several years, and peasant grain sales have increased year by year to the point where a glut of grain in granaries has regularly occurred. Grain units have not been able to make purchases, causing a situation wherein peasants have found it difficult to sell grain. This problem aroused the serious attention of provincial units concerned and of prefecture leaders, who allocated special funds to grain units at all echelons for the building of granaries. Total granary capacity planned for construction in the prefecture is 120 million jin. Granary construction begun in 1981 was threefold that of 1980. Construction has been completed of a granary storage capacity of 25.5 million jin, and 80 percent of the construction has been completed on an additional 25.5 million jin of granary storage capacity. The additional construction of these granaries will help solve a storage problem that has been a key one in peasant difficulties in selling grain. Pucheng County, which is known as the granary of northern Fujian, now has 10 warehouses completed for use, and another 8 warehouses have been built and are awaiting inspection and acceptance before being turned over for use.

9432

CSO: 4007/201

SIX PREFECTURES MEET GRAIN PROCUREMENT QUOTAS

Fuzhou FUJIAN RIBAO in Chinese 19 Jan 82 p 1

[Article compiled from drafts sent in by Huang Wende [7806 2429 1795], Chen Yisong [7115 6318 2646], and Fang Zhenhua [2455 2182 5478], News Report Unit, Longqi Prefecture Grain Bureau: "Six Prefectures Fulfill Grain Procurement Quotas. More Than 1,600 Households Sell 10,000 Jin of Grain. Broad Masses of Peasants Actively Support National Construction"]

[Text] In the wake of Xiamen City, the six prefectures of Longqi, Putian, Sanming, Ningde, Jianyang and Jinjiang fulfilled, one after another, their grain procurement quotas for the entire year.

The broad masses of commune members in these six prefectures fought against numerous natural disasters to win a bumper autumn grain harvest, making up in varying degrees losses sustained in the early crop, for an increase in total output for the year as a whole. Increase in output of autumn grain in Sanming and Jianyang prefectures was between 100 million and somewhat more than 200 million jin. Party and government leaders at all levels gave ideological education to commune members in "concurrent concern for the three" [the state, the collective, and individuals], and in "support to the three," guiding everybody in the establishment of a patriotic concept and a perspective in overall situations and increasing enthusiasm for selling procurement grain, and selling more excess grain. The 21 counties and municipalities in Sanming and Jianyang prefectures fulfilled their procurement quotas in a balanced way. In Longqi Prefecture, 17 communes sold more than 10 million jin of grain, and 72 production brigades made grain sales of more than 1 million jin. In Longhai County, the county with the most procurement grain in the province, commune members maintained their momentum of many years in eagerly selling grain, again fulfilling their procurement quotas for the entire year with 168.94 million jin. Nanjing and Fuding counties, which sustained flood disasters, devoted urgent efforts to early organization of the movement of autumn grain into granaries, and diligently balanced out abundance and scarcity, while at the same time fulfilling procurement quotas as usual. Every production brigade in Lixin Commune, Jianning County had a bumper autumn grain harvest, and every household increased output. The commune put more than 15 million jin of grain in storage in an 18 percent overfulfillment of procurement quotas.

In this prefecture, a steady stream of households has been selling 10,000 jin of grain. Incomplete statistics show that more than 1,617 households have sold

10,000 jin of grain, 22 of them having sold between 20,000 and more than 40,000 jin. In Longxi County, which had never had a household selling 10,000 jin of grain, 101 households have joined the ranks of households selling 10,000 jin of grain.

Analysis of grain quality purchased by grain units shows quality of grain entering granaries to be better than in former years. Grain of better than medium quality accounts for more than 80 percent of the total. Communes and brigades in Zhangpu County sold 18 million jin of autumn grain. Following winnowing and sifting, comparison of this grain with national grading standards at the time of storage showed 90 percent to meet better than medium grain standards.

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CSO: 4007/201

OVERFULFILLMENT OF GRAIN PROCUREMENT TASKS DESPITE NATURAL DISASTERS REPORTED

Lanzhou GANSU RIBAO in Chinese 4 Jan 82 p 1

[Article by Cheng Wensheng [2052 2429 3932]: "Jiuquan Prefecture Overfulfilled 1981's Grain Procurement Task"]

[Text] Statistics from 30 December 1981 show that Jiuquan Prefecture has placed in granaries 211.89 million jin of grain; an 0.9 percent overfulfillment of grain procurement quota, thereby having completed state purchase tasks.

Last year Jiuquan Prefecture sustained diverse natural disasters, but thanks to the strenuous labor of the broad masses of cadres and commune members who took various rescue actions, the damage caused by the natural disasters was reduced. Following the grain harvest, prefecture and county leaders went into communes and brigades where, depending on the extent of plenty or want, they promptly readjusted tasks for communes and brigades that had been hard hit and where hardships were great. In a demonstration of no reduction in their contributions despite reduction in output, the broad masses of cadres and commune members diligently carried through the principle of concern for the three [the state, the collective, and individuals], and actively completed their tasks. Anxi County overfulfilled quota by 15.7 percent and completed its procurement task for the full year 16 days ahead of schedule, with each member of the farming population providing the state 617 jin of commodity grain, an all-time record. More than 80 percent of first and second grade wheat has been placed in granaries in Jinta County.

9432

CSO: 4007/195

CORN GROWING IN MOUNTAIN REGIONS EXTOLLED

Lanzhou GANSU RIBAO in Chinese 10 Jan 82 p 1

[Article by Reporter Yang Chunchang [2799 2504 2490]: "Corn Yields of 785 Jin Per Mu From Mountain Drylands; Seven Peasant Households in Jishishan Produce Fruitful Results From Scientific Farming"]

[Text] A total of seven commune member households including that of Zhang Dengqing [1728 4098 3237] in Hejiacao Production Team, Guanjiachuan Commune, in Jishishan County organized the scientific farming of 18.67 mu of mountain dryland corn for yields averaging 785 jin per mu, creating a record yield from drylands in the mountain area for which they obtained a 2,800 yuan reward from the county government.

These seven households of commune members studied science and applied science. It was after the institution in 1980 of the contracting of work tasks to individual households, and after they saw that a county farm technician and cadre's family having had produced corn yields that averaged 216 jin more per mu, did the seven households of commune members decide to begin scientific farming. They took the initiative in seeking instruction from this farm technician cadre in the scientific principles of high corn yields, organized, and asked this farm technician cadre to guide them in running an experiment in high-yield farming. They also selected as the object of their experiment the major locally grown crop, corn. In the course of the experiment, they made sure to do the following: 1. rational rotation of crops; 2. use of superior varieties; 3. reasonably close planting; 4. scientific composting of manure and spreading of manure; 5. chemical treatment of seeds, disinfecting of soil, and removal of diseased plants.

Following autumn harvest, the output of the experimental corn fields of these seven households exceeded the yield per unit area single crop output standards for bumper harvest fields set by the county science committee and the county farm and livestock bureau. Commune member Zhang Denqing's 1 mu of corn produced 995 jin, and Zhang Fenglin's [1728 7364 2651] 5.5 mu of corn produced yields of 875 jin per mu, almost double the yields of surrounding fields. This made the masses realize the potential for increased yields from drylands in the mountain region and aroused mass enthusiasm for science.

9432

CSO: 4007/195

BRIEFS

EFFORTS TO COMBAT SNOWFALL--Since mid-March the pastoral areas of Gannan Autonomous Prefecture have experienced heavy snowstorms and the temperature has dropped drastically. Snow measured as deep as 0.5 chi in some grasslands, bringing serious harm to animal husbandry production. To combat the effects of snowstorms, the Gannan Prefectural CCP Committee and government instructed departments concerned to organize three work groups of livestock breeding experts to go to various counties to investigate and help implement animal protection measures. Together with county leaders, these work group members earnestly studied and handled problems on delivering additional fodder and medicine to disaster-stricken areas and dispatching veterinarians to assume responsibility for production teams and herds and organizing mobile medical teams to tend and protect animals, specially female animals, breeding stock and young animals. To ensure the survival of lambs, many livestock raisers braved strong winds and cold weather to graze their animals on the leeward or on grassland where snow was not as deep. Thanks to these feasible measures this prefecture had produced 400,000 young lambs by the end of March and the survival rate reached 90 percent. Presently, snowstorms are still occurring and disaster-combating work is still being carried out in the pastoral areas of Gannan Prefecture. [Text] [SK070752 Lanzhou Gansu Provincial Service in Mandarin 1125 GMT 6 Apr 82]

CSO: 4007/364

BRIEFS

COMMUNE, BRIGADE ENTERPRISES--The commune and brigade enterprises in Henan Province fulfilled the quota for the output value of some 3.39 billion yuan and submitted taxes of some 140 million yuan in 1981, a record. Over the past few years, they have conducted readjustment, resulting in increased production. The provincial commune and brigade enterprise bureau recently held a conference to sum up experiences and to strive for a great development of commune and brigade enterprises this year. [Zhengzhou Henan Provincial Service in Mandarin 1100 GMT 15 Mar 82]

CSO: 4007/364

INTELLECTUALS CREDITED WITH SOCIALLY, ECONOMICALLY USEFUL CONTRIBUTIONS

Beijing GUANGMING RIBAO in Chinese 21 Jan 82 p 1

[Article by Correspondent Yang Kaimin [2799 7030 3046]: "Jiangsu Province's Intelligentsia Play Major Role in Agricultural and Industrial Production. Implementation Program of Scientific Study to Serve the National Economy. Jiangsu Provincial CCP Committee Convenes Symposium of Intellectuals in the Science, Technology, and Agricultural Education System to Greet New Year. Xu Jiatun [6079 1367 1470] Expresses Solicitude For and Extends Greetings to Scientific and Technical Workers"]

[Text] "During 1981 the intelligentsia played a major role in Jiangsu Province's increased agricultural and industrial production, and in the new progress made in science, culture, education, and athletics." These words were spoken by Jiangsu Provincial CCP Committee First Secretary Xu Jiatun on 19 January at a discussion meeting of intellectuals in the science education system convened by the Provincial CCP Committee to greet the new year.

During the past year, Jiangsu Province has made steady progress in industrial and agricultural production while in the midst of readjustment. Gross output value of agriculture in the province was 15.6 billion yuan, a 5 percent increase over the previous year for first place in the country. This included a 2.2 percent increase in grain, a 27 percent increase in cotton, a 68 percent increase in oil-bearing crops, and outputs of cocoons, tea, and aquatic products that surpassed the all-time highs. Gross output value of industry amounted to 49.39 billion yuan for second place in the country and a 7.9 percent increase over the previous year. This included a 15.3 percent increase in light industry.

In 1981 Jiangsu Province's intelligentsia put into effect a program of scientific research to serve the national economy. Selection of topics for research was linked closely to production realities for mutual cooperation in joint efforts thereby gaining numerous important accomplishments. In the course of the year, more than 270 items were applied and promoted in production, producing rather good social results and economic benefits. In the field of grain production, acting on the basis of production conditions in Jiangsu Province, farm technicians studied hybrid rice high-yield cultivation techniques. They planted an almost 10 million mu area that produced yields averaging more than 800 jin per mu, a 150 to 200 jin per mu increase over conventional varieties of intermediate rice. This was a major factor in the province's steady development of paddy rice production.

In the growing of cotton, promotion of seedlings cultivation in fields covered by plastic sheeting for later transplanting was done over 50 percent of the growing area, resulting in earlier and more numerous cotton bolls, and producing about 25 jin per mu more of ginned cotton than directly sown cotton, and breaking 10 million dan for 2 years. In the growing of rape, Ningyou No 7 superior variety bred by the Jiangsu Provincial Academy of Agricultural Sciences was promoted. This variety ripens early and produces high yields. Its oil content is high. As compared with the former single season variety, Ningyou No 7 variety ripens 5 to 7 days earlier; yields increase by an average of about 20 jin per mu; and oil content is also from 1.5 to 3 percent higher. In the industrial field, application and promotion of scientific and technical achievements played a positive role in improving quantity and quality of products, in reducing energy consumption, and in eliminating environmental pollution. Results from scientific and technical achievements were particularly striking in the case of the light and textile industries. The Wuxi Enzyme Manufacturing Plant, for instance, which together with the Microbiology Institute of the Chinese Academy of Sciences developed saccharogenic enzyme preparations, produces about half of the country's total output. This plays a major role in the development of the light, textile, and foodstuff industries.

Comrade Xu Jiatun expressed his solicitude and extended greetings to the scientists and technicians who have arduously struggled on the front line of scientific research. The symposium was held amidst enthusiasm and vigor in a lively atmosphere. The more than 200 delegates were filled with exultation. They competed with each other to talk, and they hailed the new achievements of the past year, and also made some constructive suggestions.

The symposium was presided over by Zheng Kang [6774 1660], director of Jiangsu Provincial Bureau of Science, Technology, and Agricultural Education. Also attending the meeting was the provincial governor, Hui Yuyu [1920 3188 1342].

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CSO: 4007/195

JILIN

BRIEFS

CADRES PLANT TREES--According to our reporter, leading comrades of the provincial CCP Committee, the People's Congress Standing Committee, the people's government and the CPPCC Committee, as well as the Changchun Municipal CCP Committee and the people's government, participated today in a voluntary tree-planting activity together with more than 5,000 cadres of organs directly under the provincial and Changchun municipal authorities. At about 0700, leading comrades including Qiang Xiaochu, Wang Daren, Zhang Gensheng, Li Diping, Yu Ke, Zhang Shiyong, Song Jiehan, Mu Lin, Chen Hong, Li Youwen, Xiao Chun, Wang Jiping, Liu Yunzhao, Xu Shouxuan, Liu Cikai, Cheng Shengsan, Miao Zhuxian, Feng Yingkui, (Li Yiping), Li Beihuai, (Shi Jingwu), (Sun Shengmin) and (Xin Jianming) together with the cadres went to the (Dadingshan) mountain in (Jingye) commune in suburban Changchun Municipality. During this tree-planting activity, 5,000 people spread out over (Qiangshe) hill of (Dadingshan) mountain. Amid happy laughter, they vigorously planted trees. [Excerpt] [SK110814 Changchun Jilin Provincial Service in Mandarin 1100 GMT 10 Apr 82]

CSO: 4007/364

NEW COTTON VARIETY COMPARED WITH OTHERS

Taiyuan SHANXI NONGMIN in Chinese 5 Jan 82 p 4

[Article by Hao Tuolan [6787 7474 5695], Provincial Academy of Agricultural Sciences: "High Yield Fine Quality Jinmian No 4 Cotton"]

[Text] Jinmian No 4 was bred by the Cotton Institute of the Provincial Academy of Agricultural Sciences. The hybrid progeny of Shanghai small-leaf cotton and Zhongmiansuo No 7 was used as the female parent, and Xuzhou 58 was used as the male parent in sexual hybridization to breed it. Experiments conducted during the 3 year period 1978, 1979, and 1980 have shown this variety to produce yields that are 25.4 percent greater than stock breed Daizi 16, for first position among 11 varieties.

Not only are yields from Jinmian No 4 high, but quality is good. Measurements and test spinning done by the Beijing Fiber Testing Institute show length of fibers of this variety to be 32.41 millimeters, 0.5 millimeters longer than Lumian No 1. Evaluation results from test spinning showed Jinmian No 4 to be class 1 grade 1, its quality meeting national textile standards.

Principal characteristics and properties of Jinmian No 4 are as follows: Fairly high pre-frost flowering. The 3 years of experiments showed pre-frost flowering to average 74.2 percent, 3.44 percent higher than for Daizi No 16. Pre-frost ginned cotton was 28.3 percent more than for Daizi No 16.

Jinmian No 4's resistance to cotton blight and verticillium wilt is the same as for Daizi 16 and Zhongmiansuo No 7, all of which are susceptible varieties. It is sensitive in reaction to water and fertilizer, and unbridled growth is to be guarded against during its late stage of growth.

This variety has a rather long period of growth and is suited for planting in the various cotton growing counties of Yuncheng Prefecture in the intermediate ripening cotton growing regions of Shanxi Province. It is a fine variety for use with plastic film covering the ground to obtain high cotton yields.

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CS0: 4007/195

EVER GREATER EFFORTS TO COMBAT DROUGHT URGED

Taiyuan SHANXI RIBAO in Chinese 17 Jan 82 p 1

[Article: "Combat Drought to Protect the Wheat; Combat Drought to Prepare for Plowing, and Win a Bumper Harvest; Provincial Flood and Drought Prevention Command Telephone Conference Calls On All Jurisdictions to Take Action at Once"]

[Text] On the evening of 15 January, the Flood and Drought Prevention Command of the Provincial People's Government held a telephone conference in which it called upon all jurisdictions to act at once to combat drought to protect the wheat, prepare for plowing, and win a bumper harvest in agriculture this year. Deputy Provincial Governor Zhao Lizhi [6392 0500 0037] spoke at the conference.

The drought situation is now severe throughout the province. Snow and rain have been scant since last winter, a total of only 22 millimeters having fallen during the 3 month period October through December, an average 50 percent less than in most years. In many places summer drought was followed by fall drought, and fall drought was followed by winter drought. Because of the small amount of precipitation, a great drop in streams has occurred, and the province has more than 400 small reservoirs that have not filled with water. Winter was virtually snowless, so soil moisture conditions are inadequate, the soil being dry to a very great depth. This has already impaired normal growth of wheat. Furthermore, in many places dependent on ponds, water-retention wells, and streams for drinking water, getting water for people and animals has become difficult.

Meteorological department forecasts call for continued scant rainfall this spring, and drought will continue throughout the province.

In order to reap a bumper harvest this year, the telephone conference called upon all jurisdictions to take action at once in doing a solid job of combat against drought to protect the wheat and to prepare for plowing.

First, do a good job in thoroughly and conscientiously mobilizing peoples' thinking. Right now some comrades are blindly complacent, their comprehension of the seriousness of the drought and the importance of winning a bumper harvest insufficient. Though some have seen the advance of the drought, they are paralyzed because they rely on luck, hoping the heavens will send rain, and do not bend every effort to combat drought. Some have an inaccurate understanding of the system of responsibility, and have slackened their leadership over combat against

drought. Some commune members fear the system of responsibility, and fear investment of funds and expenditure of labor; they do not actively combat drought and water the land. All jurisdictions should focus on these ideological problems and repeatedly make clear to cadres and commune members the seriousness of the increase in drought and the importance of combating drought to win a bumper harvest, so that the broad masses of cadres and people will understand the drought situation, have their confidence in combating drought strengthened, and adopt specific measures, firmly joining the struggle against drought.

Second, everything possible should be done to water more and water well. Reservoirs and ponds of all kinds should be used to store water, and temporary projects for water storage in streams should be given attention wherever conditions permit, so that every bit of water that can be stored will be stored. Communes and brigades receiving benefits should be organized at once to clean silt from ditches, put project structures in shape, and inspect and repair machine-powered pumping station facilities so as to be able to devote a larger number of water conservancy facilities to spring irrigation. In order to make the most of existing facilities to combat drought, it is particularly necessary that a system of responsibility for water management be instituted brigade by brigade, well by well, and station by station.

Third, broadly mobilize the masses to carry out harrowing of parched land to preserve water moisture. Three-fourths of the cultivated land in Shanxi Province is dryland requiring prompt rolling before thawing begins in early spring, and harrowing. In places where conditions permit, prompt action should be taken to promote combat against drought by dibbling seeds, seeding with a drill, and by doing concentrated spreading of manure so that spring planting will result in a full stand of seedling crops. In addition, provisions must be made for the planting of drought-resistant crops, a certain amount of seeds being collected and set aside in preparation against famine.

All locales are to strengthen leadership of drought prevention work. The combat against drought to protect the wheat, and to prepare for plowing covers a broad spectrum and requires solution to numerous problems. All locales should designate persons specifically responsible for these tasks; they should revitalize and strengthen organizations for combat against drought, and organize agricultural, water conservancy, electric power, trade, and public financial units for coordinated efforts to solve problems related to the use of electricity, fuel, and funds in fighting drought. Leaders at all levels in prefectures, counties and communes should improve their work styles and organize definite forces. Leaders should personally lead teams into the front line of combat against drought, make on-site investigation and study, supervise, and inspect, and make on-the-spot solution to problems to do a good job of combat against drought.

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CSO: 4007/201

SHANXI

BRIEFS

GRAIN OUTPUT--Taiyuan, 16 Apr (XINHUA)--Dingxiang County in Shanxi reaped a total grain output of 200.6 million jin in 1981, up by 27.4 percent from 1978. At the same time, the county raised more than 76,000 head of hogs, 13,480 head of draught animals and 56,000 head of sheep and goats. [OW181255 Beijing XINHUA Domestic Service in Chinese 0125 GMT 16 Apr 82]

CSO: 4007/365

XIZANG

BRIEFS

HIGHLAND BARLEY--Lhasa, 18 Apr (XINHUA)--This year Xigaze Prefecture of Xizang autonomous region will grow a record 659,000 mu of highland barley, accounting for 61 percent of the cropland. Sowing work is now being done in the prefecture. [OW190949 Beijing XINHUA Domestic Service in Chinese 0225 GMT 18 Apr 82]

CSO: 4007/365

Plant Technology

AUTHOR: FANG Wen [2455 2429]

ORG: Institute of Rice, Sichuan Provincial Academy of Agricultural Sciences

TITLE: "Why Can Strong Rice Seedlings With Many Tillers Increase the Yield?"

SOURCE: Beijing NONGYE KEJI TONGXUN [AGRICULTURAL SCIENCE AND TECHNOLOGY NEWSLETTER] in Chinese No 2, 17 Feb 82 pp 3-4

ABSTRACT: In the southeastern region of Sichuan, the unit yield of rice of either the intermediate or the dual season systems is neither high nor stable. In either system, the previous crop is usually harvested late and transplanting is late as well. In the early period, the rice plant does not achieve sufficient growth; in the late period, it is easily affected by bad weather. In 1975, the author and colleagues began to study the technique of cultivating strong seedlings with many tillers. Since 1977, the technique has been extended in several million mu of paddies. The practice has proved that a yield increase of 5 percent for intermediate rice and 10-30 percent for dual season rice may be obtained with the technique. In the year 1980, 400 million jin of rice seeds were saved by the technique in Sichuan Province as a whole. The technique involves cultivating 3 types of seedlings: (1) Small seedlings grown in greenhouses to be used for transplanting early; (2) Ordinary strong seedlings suitable when the transplanting is just right; (3) Strong seedlings with many tillers suitable for transplanting wherever the wheat harvest is late. The weight of dry substance, the nitrogen and phosphorus contents, and the root system activity of the second and third types of seedlings are compared to show why the third type may be transplanted late and still produce an increase of yield.

AUTHOR: ZHANG Jinxi [1728 6930 3556]

ORG: Institute of Crops, Chinese Academy of Agricultural Sciences

TITLE: "Questions and Answers Concerning the Method of Promoting or Controlling According to the Leaf-age Indices of Wheat"

SOURCE: Beijing NONGYE KEJI TONGXUN [AGRICULTURAL SCIENCE AND TECHNOLOGY NEWSLETTER] in Chinese No 2, 17 Feb 82 pp 7-10

ABSTRACT: Leaf-age is the term given to the time when a given number of leaves appear on the main stem of the wheat plant. The method means to carry out a given field management measure with the number of leaves on the plant as the guidance. These measures of promoting or controlling include mainly fertilizer application, irrigation, and withholding water. The number of leaves on the main stem may be counted directly. In case of numerous tillers, when the seedling has 3 leaves or 5 leaves, a red dot may be painted on the last leaf so that there will be no mistake in counting later on. Scientific basis of this leaf-age technique is analyzed in the following aspects: (1) The principle of coextension of leaf-age and organs; (2) Correspondent relationship between leaf-age and spike evolvment; (3) Different fertilizer and water efficiency at a different leaf-age. Procedures and problems in the application of the leaf-age indices are introduced and discussed.

6248
CSO: 4011/67

Veterinary Medicine

AUTHOR: ZHANG Pengcheng [1728 7720 4453]
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ORG: ZHANG of Jilin Provincial Research Institute of Veterinary Medicine; YU of Jilin Provincial Animal Husbandry and Veterinary Medicine General Station

TITLE: "Diagnosis and Prevention of Condition in Swine Similar to Transmissible Gastroenteritis (TGE)"

SOURCE: Beijing ZHONGGUO SHOUYI ZAZHI [CHINESE JOURNAL OF VETERINARY MEDICINE]
in Chinese No 1, 22 Jan 82 pp 18-20

ABSTRACT: On 8 Feb 75, at the pig sty of the Jiutai County Bureau of Commerce, Jilin Province, a sow that was awaiting birth was found to suffer from diarrhea, a symptom very much like TGE. By 19 Feb, 119 of the 128 newborn piglets of the sty had come down with the disease, and 80 died. Of the 14 sows, 11 caught the disease. Cases of diarrhea had been reported in nearby communes, but none of the local horses, oxen, sheep, or chickens ever came down with the symptom. Disorders of the intestines, stomach, and kidney can be observed by the naked eye during dissection. Results of pathohistological examinations confirmed the diagnosis of TGE. Aside from treatment for dehydration, it appears that the condition of azotemia as indicated by the manifestations of the dissected kidneys should be given special consideration. Reports on TGE by Underdahl Mebus, Healterman, E. O., Doyle, E. P., Tamoglia, T. W. Bohl, E. H., Thorosen, and Djurickowic, etc. are briefly reviewed.

AUTHOR: ZHANG Xinru [1728 1800 1172]
WEI Keqian [7279 0344 6197]

ORG: ZHANG Xinjin County Bureau of Agriculture, Sichuan Province; WEI of Wenjiang County Bureau of Agriculture, Sichuan Province

TITLE: "A Survey of Swine Hematuria"

SOURCE: Beijing ZHONGGUO SHOUYI ZAZHI [CHINESE JOURNAL OF VETERINARY MEDICINE]
in Chinese No 1, 22 Jan 82 pp 20-21

ABSTRACT: A survey disclosed that swine hematuria occurs mainly in the period from Apr to Oct, and most frequently from Jul to Sep, mostly in a dry spell, extremely rare in rainy days. It occurs mostly to thin pigs and in all cases, the pigs had been fed soybean leaves, turnip leaves, lima bean leaves, etc. that were damaged by aphids. When pigs have been fed 4-5 days with feed materials, 30 percent of which have been damaged by aphids, the disease will occur, but it is usually mild. If more than 70 percent of the feed is damaged by aphids, severe cases of hematuria invariably occur in 2-3 days, and the pigs quickly die. Pathological surveys claimed that the disease is caused by aphid-containing feed. The results of dissection and feed analysis performed by the Research Institute of Animal Husbandry and Veterinary Medicine have produced a preliminary diagnosis of formic acid poison, however. The authors believe that as ants like aphid excrement, the aphid contaminated feed is also contaminated by ant excrement, which is, in reality, formic acid. Due to the fact that formic acid is easily dissolved in water, such feed is no longer poisonous after frequent rains.

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CSO: 4011/69

Weather Study

AUTHOR: WU Daming [0702 6671 6900]

ORG: Shanghai Central Weather Station

TITLE: "The Abnormal Circulation of 1980 Which Caused Floods and Low Temperature in the Lower Reaches of Changjiang"

SOURCE: Shanghai ZIRAN ZAZHI [NATURE JOURNAL] in Chinese Vol 5 No 1, 1982 pp 25-29

ABSTRACT: Records of monthly averages are analyzed to study the month of Aug 80. The analysis led to the discovery of the fact that although the high pressure system of that month in the subtropics of the North Pacific was strong, its location was shifted much to the south of 30°N , the location of a normal year. Cold air masses came regularly from the East and the West going southward to cause the axis of the greatest westerlies to stay in the vicinity of 32.5°N instead of the vicinity of 42°N of a normal year. The north-south air currents converged in the region of the middle and lower reaches of Changjiang to shift the normal rainy region of the Huanghe southward. Rainstorms occurred easily of course in the region of the relatively large angle of intersection between the line of vortex concentration and the southerly inclined wind. This type of abnormal circulation pattern in East Asia is closely related to the circulation change in the Southern Hemisphere and the Atlantic Ocean.

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